Notice No.1

Rules and Regulations for the Classification of Offshore Units July 2018

The status of this Rule set is amended as shown and is now to be read in conjunction with this and prior Notices. Any corrigenda included in the Notice are effective immediately.

Please note that corrigenda amends to paragraphs, Tables and Figures are not shown in their entirety.

Issue date: November 2018

Amendments to	**Effective date**	**IACS/IMO implementation (if applicable)**
Part 1, Chapter 2, Section 3	Corrigendum	N/A
Part 1, Chapter 3, Sections 1 & 5	1 January 2019	1 January 2019
Part 3, Chapter 7, Section 1	Corrigendum	N/A
Part 3, Chapter 8, Section 1	Corrigendum	N/A
Part 3, Chapter 12, Section 1	Corrigendum	N/A
Part 3, Chapter 17, Section 1	Corrigendum	N/A
Part 3, Chapter 18, Section 1	Corrigenda	N/A
Part 7, Chapter 1, Section 5	Corrigenda	N/A
Part 8, Chapter 2, Section 3	1 January 2019	N/A
Part 11, Chapter 1, Section 1	1 January 2019	N/A
Part 11, Chapter 4, Section 6	1 January 2019	N/A

Part 1, Chapter 2
Classification Regulations

■ *Section 3*
Surveys – General

3.5 Existing installations – Periodical Surveys

3.5.3 The Owner should notify LR whenever a unit can be examined in dry dock or on a slipway. A minimum of two Bottom Surveys are to be held in each five-year Special Survey period and the maximum interval between successive Bottom Surveys is not to exceed three years. A Bottom Survey is an examination of the outside of the unit~~s~~'s bottom and related items and is normally to be carried out with the unit in ~~dry-dock~~ dry dock. However, the Classification Committee ~~may give consideration to alternate examination while the unit is afloat~~ will accept In-Water Surveys in lieu of Bottom Surveys in dry dock on units assigned an **OIWS** (In-Water Survey) notation upon the agreement of the Administration, *see Pt 1, Ch 3, 4.3 In-Water surveys*.

Part 1, Chapter 3
Periodical Survey Regulations

■ *Section 1*
General

Sub-Section 1.10 has been deleted in its entirety.

~~1.10 Steel renewal criteria~~

■ *Section 5*
Special Survey – Hull requirements

5.3 Examination and testing

Table 3.5.1 has been moved from sub-Section 5.4 to the end of sub-Section 5.3.

(Part only shown)
Table 3.5.1 Air pipe head internal examination requirements (applicable for automatic air pipe heads installed on exposed decks of all units)

~~Special Survey I~~ ~~(Units 5 years old)~~	~~Special Survey II~~ ~~(Units 10 years old)~~	~~Special Survey III~~ ~~(Units 15 years old) and subsequent~~
Special Survey I **Age ≤ 5**	**Special Survey II** 5 < Age ≤ 10	**Special Survey III and subsequent** Age > 10

5.4 Thickness measurement

5.4.4 Where the protective coating is in GOOD condition, then the extent of thickness measurements of internals may be specially considered, but not dispensed with in its entirety, at the discretion of the Surveyor.

Existing paragraphs 5.4.4 to 5.4.6 have been renumbered 5.4.5 to 5.4.7.

(Part only shown)

Table 3.5.3 Minimum Requirements for Thickness Measurements for Column-Stabilized Units at Special Survey

Table 3.5.4 Minimum Requirements for Thickness Measurements for CALM Buoys

Special Survey I **Age ≤ 5**	**Special Survey II** 5 < Age ≤ 10	**Special Survey III** 10 < Age ≤ 15	**Special Survey IV and subsequent** Age > 15
(1) Suspect areas throughout the unit.	(1) Suspect areas throughout the unit.	(1) Suspect areas throughout the unit.	(1) Suspect areas throughout the unit.
	(2) External watertight envelope of the buoy where wastage is evident.	(2) External watertight envelope of the buoy.	(2) External watertight envelope of the buoy.
		(3) Structural appendages where wastage is evident.	(3) Structural appendages where wastage is evident.
		(4) Internal watertight divisions – plating and stiffeners.	(4) Internal watertight divisions – plating and stiffeners.

Existing Table 3.5.4 Requirements for Additional Thickness Measurements in way of Substantial Corrosion has been renumbered Table 3.5.5.

Part 3, Chapter 7
Drilling Plant Facility

■ *Section 1*
General

1.6 Equipment categories

1.6.4 A guide to equipment and categories is given in ~~*Pt 12, Ch 1 Recognised Codes and Standards*~~ *Pt 3, Ch 21 Guidelines on Scope of Survey Certification of Safety Critical Equipment*. A full list of equipment categories for each drilling plant facility is to be agreed with LR before manufacture. Minor equipment components need not be categorised.

Part 3, Chapter 8
Process Plant Facility

■ *Section 1*
General

1.6 Equipment categories

1.6.4 A guide to equipment and categories is given in ~~*Pt 12, Ch 1, 9 Concrete structures*~~ *Pt 3, Ch 21 Guidelines on Scope of Survey Certification of Safety Critical Equipment*. A full list of equipment categories for each production and process plant facility is to be agreed with LR before manufacture. Minor equipment components need not be categorised.

Part 3, Chapter 12
Riser Systems

■ *Section 1*
General

1.9 Equipment categories

1.9.4 A guide to equipment and categories is given in ~~*Pt 12, Ch 1, 9 Concrete structures*~~ *Pt 3, Ch 21 Guidelines on Scope of Survey Certification of Safety Critical Equipment*. A full list of equipment categories for the riser system is to be agreed with LR before manufacture. Minor equipment components need not be categorised.

Part 3, Chapter 17
Pipe-laying Units

■ *Section 1*
General

1.1 Application

1.1.7 Requirements additional to those of this Chapter may be imposed by the National Authority in the country in which the unit is registered and/or Coastal State Authority under which jurisdiction the unit is to operate e.g. pipe-laying units may require compliance with *ISPS Code - International Code for the Security of Ships and of Port Facilities* and ~~*SPS Code - Code of Safety for Special Purpose Ships – Resolution A.534(13)*~~ *SPS Code – Code of Safety for Special Purpose Ships, 2008 – Resolution MSC.266(84)* supplemented by the stability requirements of the 2009 MODU Code - Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 – Resolution A.1023(26).

Part 3, Chapter 18
Crane Units

■ *Section 1*
General

1.1 Application

1.1.8 Requirements additional to those of this Chapter may be imposed by the National Authority/Coastal State Authority in the country in which the crane unit is registered and/or is to operate, e.g. crane units may require compliance with ~~*SPS Code - Code of Safety for Special Purpose Ships – Resolution A.534(13)*~~ *SPS Code – Code of Safety for Special Purpose Ships, 2008 – Resolution MSC.266(84)* supplemented by the stability requirements of the ~~*1979 MODU Code – Code for the Construction and Equipment of Mobile Offshore Drilling Units – Resolution A.414(XI)*~~ *2009 MODU Code – Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 – Resolution A.1023(26)*.

Part 7, Chapter 1
Safety and Communications Systems

■ *Section 5*
Protection against gas ingress into safe areas

5.1 General requirements

5.1.5 Enclosed spaces with no source of release, but which contain sources of ignition such as machinery rooms, accommodations blocks or electrical equipment rooms are to be provided with fast-response gas detection at the air inlets, which are set with a suitably low gas detection level to initiate appropriate alarm and trip alarm functionality. The inlet gas detection should be located upstream of suitably rated fire and gas dampers. This is to ensure that an ignitable concentration of gas is prevented from entering an area containing an ignition source. The passage of an ignitable concentration of gas in the ducts should be stopped before it crosses the boundary of the protected space. Total response time of detectors, control systems and dampers should mitigate against an ignitable concentration of gas entering the ventilated space. As such, inlet ventilation dampers are to be designed to be fully closed within a minimum ~~of~~ period of time but in no case more than five seconds ~~of~~ from gas detection at the associated ventilation air inlet gas detector. Other mitigating measures that can be considered are:

Part 8, Chapter 2
Cathodic Protection Systems

■ *Section 3*
Impressed current anode systems

3.1 General

~~3.1.3 All equipment is to be suitable for its intended location. Cables to anodes are not to be led through tanks intended for the storage of low flashpoint oils. Where cables are led through cofferdams of oil storage units they are to be enclosed in a substantial steel tube of about 10 mm thickness.~~

3.1.3 All equipment is to be suitable for its intended location.

3.1.4 The arrangements for glands, where cables pass through shell boundaries, are to include a small cofferdam.

3.1.5 Cables which pass through ballast tanks are to be enclosed in a steel tube of at least 10 mm thickness.

3.1.6 Cables to anodes are not to pass through tanks intended for the storage of low flash point products, including, but not limited to, oils.

3.1.7 Cables which pass through the cofferdams of storage tanks which may contain low flash point products are to be enclosed in a steel tube of at least 10 mm thickness. *See also Pt 7, Ch 2 Hazardous Areas and Ventilation*.

Existing paragraphs 3.1.5 to 3.1.10 have been renumbered 3.1.8 to 3.1.13.

Part 11, Chapter 1
General

■ *Section 1*
General

1.3 Definitions

(Part only shown)

1.3.1 Except where expressly provided otherwise, the following definitions apply to this Part. Additional definitions are provided in Chapters throughout this Part:

(ai.) **Fuel oil unit** is the equipment used for the preparation of fuel oil for delivery to an oil-fired boiler, or equipment used for the preparation for delivery of heated oil to an internal combustion engine, and includes any oil pressure pumps, filters and heaters dealing with oil at a pressure of more than ~~1,8 bar~~ 0,18 MPa gauge.

(az.) **Vapour pressure** is the equilibrium pressure of the saturated vapour above the liquid, expressed in ~~bars~~ MPa absolute at a specified temperature.

Part 11, Chapter 4
Cargo Containment

■ *Section 6*
Tank types

6.1 Type A independent tanks

(Part only shown)

6.1.3 **Symbols:**

P_{eq} = the internal pressure head, in ~~bar~~ MPa, as derived from *Pt 11, Ch 4, 3.3 Functional loads 3.3.2(a)* and measured at a point on the plate one third of the depth of the plate above its lower edge

(Part only shown)

6.1.4 The scantlings of Type A independent tanks are to comply with the following:

(b) **Boundary plating**.

The thickness of plating forming the boundaries of cargo tanks is to be not less than 7,5 mm, nor less than:

$$t = 0{,}011\, s\, f\, \sqrt{10 P_{\mathrm{eq}} k} \text{ mm}$$

NOTE

An additional corrosion allowance of 1 mm is to be added to the thickness derived if the cargo is of corrosive nature, *see also Pt 11, Ch 4, 2.1 Functional requirements 2.1.6* and *Pt 11, Ch 4, 2.1 Functional requirements 2.1.8*.

(c) **Rolled or built stiffeners.**

The section modulus of rolled or built stiffeners on plating forming tank boundaries is to be not less than:

$$Z = \frac{10 P_{eq} s k l_{\mathrm{e}}^{2}}{f_{\mathrm{s}} \gamma (\omega_1 + \omega_2 + 2)} \text{ cm}^3$$

(d) **Transverses.**

The scantlings of transverse members are normally to be derived using direct calculation methods. The structural analysis is to take account of the internal pressure defined in *Pt 11, Ch 4, 3.3 Functional loads 3.3.2.(d)* and also those resulting from structural test loading conditions. Proper account is also to be taken of structural model end constraints, shear and axial forces present and any interaction from the double bottom structure through the cargo tank supports.

As an initial estimate, the scantlings of the primary transverses may be taken as:

top transverse

$Z = 720 P_{eq}\, s\, l_{t}^{2}\, k$ cm~~3~~^{3}

topside transverse

$Z = 520 P_{eq}\, s\, l_{t}^{2}\, k$ cm~~3~~^{3}

side transverse

$Z = 560 P_{eq}\, s\, l_{s}^{2}\, k$ cm~~3~~^{3}

bottom transverse

$Z = 560 P_{eq}\, s\, l_{b}^{2}\, k$ cm~~3~~^{3}

centreline bulkhead transverse

$Z = 400 P_{eq}\, s\, l_{c}^{2}\, k$ cm~~3~~^{3}

(e) **Tank end webs and girders.**

The section modulus of vertical webs and horizontal girders is to be not less than:

$Z = 850 P_{eq}\, b l^{2}\, k$ cm~~3~~^{3}~~.~~

(g) **Internal bulkheads (non-perforated).**

Where a bulkhead may be subjected to an internal pressure head, P_{eq}, resulting from loading on one side only, the scantlings of plating, stiffeners and primary members are to be determined from (b), (c) and (d).

Where no such loading condition is envisaged, the scantlings may be derived as follows:

The thickness of plating is to be not less than would be required for the tank boundary plating at the corresponding tank depth and stiffener spacing, reduced by 0,5 mm. The section modulus of stiffeners and transverses is to be derived from (c) or (d), respectively, but P_{eq} need not exceed:

$$\frac{\left(\frac{t_{\text{p}}-1,0}{0,01265\,s\,f\sqrt{k}}\right)^{2}}{10}$$ ~~2 bar~~ MPa

(h) **Tank crown structure.**

Where the minimum thickness of tank boundary plating (7,5 mm) has been adopted, the section ~~modulus~~ moduli of associated stiffeners and transverses are to be derived as above, but P_{eq} is to be not less than that equivalent to the minimum thickness, that is:

~~$P_{\text{eq min}} = \left(\frac{6,5}{0,01265\,s\,f\sqrt{k}}\right)^{2}$ bar~~

$$P_{\text{eq min}} = \frac{\left(\frac{6,5}{0,01265\,s\,f\sqrt{k}}\right)^{2}}{10}\ \text{MPa}$$

(i) **Connection of stiffeners to primary supporting members.**

In assessing the arrangement at intersections of continuous secondary and primary members, the requirements of *Pt 3, Ch 10, 5.2 Arrangements at intersections of continuous secondary and primary members* are to be complied with using the requirements for ‘other ship types’. The total load, P, in kN, is to be derived using the internal pressure head, P_{eq}, in ~~bar~~ MPa as given by ~~3.3.2.(f)~~ *Pt 11, Ch 4, 3.3 Functional loads 3.3.2(f)* and the following formulae:

(i) In general:

~~$P = 100(S_{\text{w}} - 0,5s_{1})s_{1}P_{\text{eq}}$ kN~~

$P = 1000\,(S_{\text{w}} - 0,5s_{1})\,s_{1}\,P_{\text{eq}}$ kN

(ii) For wash bulkheads:

~~$P = 120\,(S_{\text{w}} - 0,5s_{1})s_{1}P_{\text{eq}}$ kN~~

$P = 1200\,(S_{\text{w}} - 0,5s_{1})\,s_{1}\,P_{\text{eq}}$ kN

(Part only shown)

6.1.8 **Testing**

The following equations calculate the head of water required to model the design pressure, P_{eq}, used in the scantling calculations of the tank structure. If a hydro-pneumatic test is utilised, the head of water h_{HP} is to be taken as:

$$h_{\text{HP}} = \frac{\sout{10,2}\ 102(P_{\text{eq}} - P)}{RD} + y$$

where

P_{eq} = design pressure, in ~~bar~~ MPa, at location under consideration as derived from *Pt 11, Ch 4, 3.3 Functional loads 3.3.2*

P = air test pressure, in ~~bar~~ MPa

For a given head of water, h_{HP}, the load, in ~~bar~~ MPa, at the location under consideration would be:

$$P_{\text{HP,LOAD}} = 10P + \frac{RD(h_{\text{HP}} - y)}{10,2}$$

Care is to be ~~given~~ taken that the ratio $\cancel{\frac{P_{\text{HP,LOAD}}}{10,2P_{\text{eq}} \leq 1,0}}$ $\frac{P_{\text{HP,LOAD}}}{10,2P_{\text{eq}}} \leq 1,0$ at any point around the tank.

If a hydrostatic test is utilised, the head of water, h_{HS}, is to be taken as:

$$h_{\text{HS}} = \frac{\sout{10,2}\ 102\,P_{\text{eq}}}{RD} - (h - y)$$

For a given head of water, h_{HS}, the load, in ~~bar~~ MPa, at the location under consideration would be:

~~$P_{\text{HP,LOAD}} = \frac{RD[h_{\text{HS}} + (h_{\text{HP}} - y)]}{10,2}$~~

$$P_{\text{HP,LOAD}} = 10\frac{RD[h_{\text{HS}} + (h_{\text{HP}} - y)]}{10,2}$$

Care is to be ~~given~~ taken that the ratio $\cancel{\frac{P_{\mathrm{HP,LOAD}}}{10{,}2P_{\mathrm{eq}}} \leq 1{,}0}$ $\frac{P_{\mathrm{HP,LOAD}}}{10{,}2P_{\mathrm{eq}}} \leq 1{,}0$ at any point around the tank.

The test pressure is to be not less than the MARVS.

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Published by Lloyd’s Register Group Limited
Registered office (Reg. no. 08126909)
71 Fenchurch Street, London, EC3M 4BS
United Kingdom

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